QUARTERLY

THE ALLERGY AND ENVIRONMENTAL HEALTH ASSOCIATION

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EDITORS' MESSAGE

Most of us who have environmental sensitivities have obtained useful information and support from other sensitive people. In this way, we have learned about relevant reading material; common causes of sensitivities; helpful doctors; and where to find alternative products.

One of the main purposes of our nine branches is to provide such information and support. In this issue, we interview Joanna Anderson, who is a former president of the Hamilton-Burlington Branch. She poses an interesting question: how do we keep people interested after they get their information?

The AEHA now has approximately 850 members and we would like that number to keep growing. Policy setters, government regulators, and medical authorities need to know there are many environmentally sensitive Canadians concerned about and in need of unpolluted air, water and foord.

Also as our new membership revenues grow, we can fund more member services, like a new library, informational pamphlets, perhaps even paid staff.

Almost everyone knows someone who suffers from sensitivities. They are inevitably delighted to find out about and join the AEHA. So, what do you think? Will the new members out number the ones who leave us?

Betty Auslander
Marianne Bertrand

THE QUARTERLY

CO-EDITORS

Betty Auslander
Marianne Bertrand

The AEHA Quarterly publishes scientific and person material reflecting the needs and interests of people with environmentaly related illnesses. The Quarterly does not offer medical advice. People wishing to experiment with changes in their lifestyle should consult a physician.

Letters to the editor and submission of material for The AEHA Quarterly should be sent to:

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The Allergy and Environmantal Health Association of Canada is a non profit, registered charity.

The association's mandate is to increase awareness of environmentally related illnesses, stressing recognition, prevention, and treatment, and to advocate for fair and equitable treatment of affected persons.

The AEHA has branches across Canada.

ENVIRONMENTAL SENSITIVITIES

A growing segment of the population experience a variety of adverse reactions to environmental agents at levels well below those that might be deemed to affect average persons. This atypical reactivity is called Environmental Sensitivity.

Subsections of Environmental Sensitivity include labels descriptive of the site of the reaction such as "Asthma" (lungs) or of the mechanism of the reaction such as "Allergy", or of the causative agents such as "Multiple Chemical Sensitivity" or "Electromagnetic Sensitivity".

Typical agents include food, water, airborne substances, electromagnetic fields, and materials typically encountered in our daily lives, including both physiological and psychological stressors.

Sensitivity is highly individualistic, affecting each individual in a unique way, making definition, diagnosis and treatment difficult. Severe sensitivity is called "Hypersensitivity" and in some extreme instances, where a person has a sudden attack called "Anaphylaxis", the condition can be fatal. Symptoms may be mild and merely annoying, or they can be severe enough to interfere with daily activities, family life and career.

Environmental sensitivity is a degenerative illness. Prevention, early detection and treatment are therefore of paramount importance in dealing with this illness. Treatment of Environmental Sensitivity focuses on prevention, prudent avoidance of offending agents, appropriate nutrition, counselling and medical intervention.

Environmental Sensitivity is a relatively new field and as such is subject to considerable variation in interpretation. Environmental Sensitivities have been officially acknowledged as legitimate and compensatable disorders by many governments, agencies and research establishments.

MEMBER PROFILE

JOANNA ANDERSON: FORMER AEHA BRANCH PRESIDENT

The first branch of what is now the AEHA was started in Hamilton in 1969. It was active for some years and was reactivated in 1988 as the Hamilton-Burlington Branch. The process of restarting involved sending out letters to long term members of the Hamilton Branch and members in Burlington, Ancaster and Dundas and inviting them to a General Meeting in October 1988. Joanna Anderson was elected president and three board members assumed responsibility for the books, bank account, membership renewals, newsletter, speakers, meetings and publicity. Then the branch obtained a seat on the Special Education Advisory Committee (SEAC) in Halton.

During 1989 and 1990, the Branch held 7 meetings a year. (Oct., Nov., Jan., Feb., Mar., Apr. and May seemed to get good turn outs). There were speakers at each meeting. About 200 people came to hear Doris Rapp. A talk on Candida at McMaster was also well attended. Many nurses came to this presentation and seemed to be very interested in environmental health issues.

Meetings were publicized in the local papers and in health food stores. Some reporters called the Branch when they saw these notices. Since environmental health was a "hot" topic in those years, the articles that the reporters wrote helped boost attendance. Typically some 50% of the audience were from the general public.

During 1992, the Hamilton-Burlington Branch alternated monthly support group meetings with speakers. Each geographic area was encouraged to have its own support group meetings. This worked especially well in Hamilton where there were regular meetings of 6-8 people.

An interesting challenge for this branch is how to find enough volunteers to keep it active. Many members seem to join for a year or two until they have identified what lifestyle changes they need to make. Long term members are usually chronically ill or are the parents of affected children. They are not all interested in regular meetings. Membership has declined from 60 to 30 members.

New people do keep discovering this Branch of the AEHA. Joanna gets about one call a month. Such people have been directed to them by public libraries, social service directory, public health depatment, disabled health line and parents anonymous. The Hamilton-Burlington Branch has made sure that these organizations have their phone number.

Joanna gave up her duties as president after 4 years. However, she continues to accumulate resource materials for the AEHA. She is unable to photostat these for members because of copyright rules and costs. Instead, she does provide information resource lists on:

- indoor air concerns
- indoor air pollution - carpets
- indoor air biological contamination
- chemical exposures
- formaldehyde
- housing and environmental sensitivities

Members can then seek out the original materials in university libraries. These lists are useful if you need to build a case for getting someone to make physical changes. In some cases, just sharing the list may encourage someone to make changes.

She also provides product/services source lists on:

- carpets
- children's camps in Ontario
- bedding in Ontario
- respirators

You can write to Joanne Anderson for these lists at, 356 Rankin Drive, Burlington, Ontario, L7N 2B4.

If you have information that would help her expand these lists (especially nationally), please write her.

Look for reprints of these lists in future editions of the AEHA Quarterly.

Betty Auslander

MEDICAL UPDATE

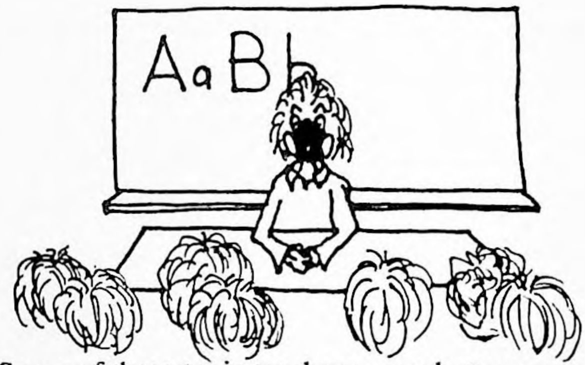
THE TOXIC TEACHER SYNDROME

Each year we see scores of teachers who have the same story. It goes something like this: Because there was an increasing need for their special educational services, a new classroom had to be created for them. Sometimes the "new" room was actually a larger room that was partitioned off into smaller rooms. This partitioning often left the newly created room without windows and/or without the full use of ventilation system. Sometimes, the room was a converted janitor's closet where cleaning supplies, pesticides,mops and buckets were stored. Because it was originally designed as a storage closet, it also had no windows and was not part of the ventilation system.

As part of the renovation, the newly partitioned room or closet was emptied, painted and carpeted. Children who took classes in this room usually did so for a maximum of one period a day, but the teacher often spent her entire day, five days a week, in this renovated, under-ventilated small room.

Over a period of time, she developed a large array of symptoms, depending upon the individual, but the commonest by far was always "brain fog." She gradually became spacey, dizzy, dopey, felt as though she couldn't concentrate well and was exhausted or depressed for no apparent reason. She usually had a host of other complaints that seemed unrelated, such as irritable bowel, headaches, recurrent sinus infections, body aches and arthritis, nausea and irritable bowel, unexplained mood swings, painful or irregular menstrual periods, and much more.

Also, she often had begun to react to (have symptoms associated with) exposures to chemicals that never before bothered her, such as new carpeting, perfumes, cigarette smoke, paint,felt tip marking pens, and auto exhaust. The same thing happened with many foods, where she could now precipitate symptoms by eating certain foods that had never bothered her before. For example, eating sugars or wheat would accentuate the brain fog or fatigue.

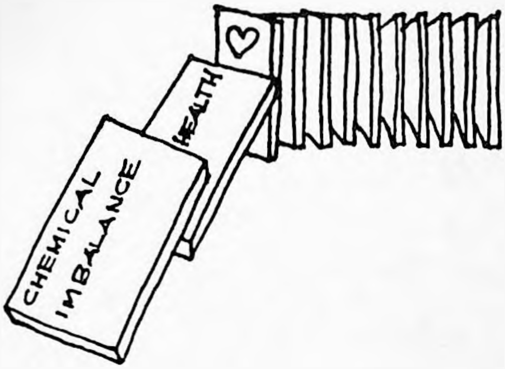


Some of these toxic teachers were better on weekends, others were not. But they all passed their physical exams, blood tests and x-rays with flying colors, and no abnormalities could be found.

So, what was the culprit of this mysterious malay? It was CHEMICAL SENSITIVITY. It is caused by the inability to metabolize or detoxify the extra burden of chemicals from the renovation materials. The problem was compounded by having inadequate ventilation. When chemicals are unable to be detoxified, this results in the slow accumulation of chemicals that back up in the blood and begin to create damage and symptoms.

Everything to a different degree is aging or oxidizing, a chemical reaction that is spontaneous and unavoidable, and part of the basis of life. As this happens, amount of the material are in the air, regardless of whether we can smell them. This called off-gassing. Some off-gassing is more noticeable than others. For example, the off-gassing by a new car puts vinyl chloride, formaldehyde, toluene, and other chemicals into the air. These comprise part of the "new car smell."

Everything that is in the air reaches an equilibrium with the body, and some of the chemical is also in the blood stream, because we are breathing the air. For example, carbon monoxide is odorless, but when it is in the air in sufficient concentration it can kill us. In lesser amounts, though, our body detoxification system metabolizes or neutralizes the chemicals and gets rid of them in the urine or bowel.



Some of the modern day chemicals are more difficult for the body to detoxify and they linger in the body undetoxified. When this happens, not only can they cause symptoms, they back up and damage other parts of the body, thus causing a domino effect of perplexing undiagnosable symptoms.

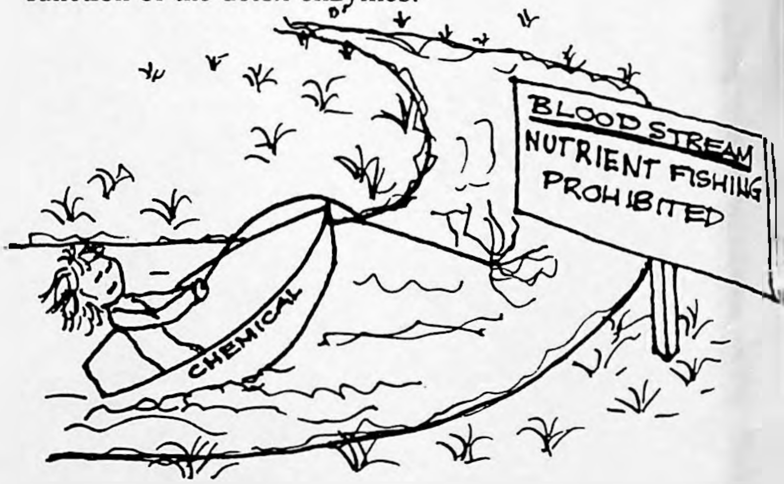
You see, we are the first generation of humanity ever exposed to so many new chemicals. The average person in the home and work environments is exposed to over 500 chemicals a day. Normally these do not cause any problem as most people have healthy detoxification systems. Every chemical, whether we can smell it or not, quickly diffuses across the lung membranes into the bloodstream, where if the detox system is healthy, the body gets rid of the chemical.

Most of us are healthy enough to detoxify these chemicals without even being aware of them. However, in some people, because the detox pathways are not healthy, the chemicals back up. One sign of people who may be becoming chemically sensitive is that they often perceive odors that others cannot. And many odors seem exagerated and actually cause symptoms that they don't cause in other people, such as inability to concentrate, headache, depression and fatigue. As if that were not a big enough problem, the symptoms they cause cannot usually be easily diagnosed with regular blood tests or x-rays, so often the victims are labelled malingerers or are told the symptoms are all in their heads.

In a newly renovated room, there is a higher than average level of chemical out-gassing, such as toluene from the paints and formaldehyde, 4-PC,and trichloroethylene from the carpets. But as we saw, when the EPA put in new carpeting in 1988, only 126 of the 2,000 workers developed the sick building syndrome or tight building syndrome. The rest of them were able to detoxify the 4-PC that the carpet emitted and had no symptoms. Whereas those unable to detoxify had a variety of the typical indoor air sensitivity symptoms. Some recovered and some never have.

If, when the teacher goes home at night, her home is much less chemically contaminated, often she will clear out and feel rejuvenated for the next day. However, if at home she also has new carpeting or has recently painted, or someone smokes, her detox system continues to be overstressed and she does not clear out. Too much mold growth, a poorly vented gas stove or wood stove, vinyl wallpapers or drapes, or furniture coverings with stain-resistant coatings are some of the other items that can add to home pollution.

Or if she is hooked on a lot of sweets and junk foods, her detox pathways are not as strong, because they are invariably low in certain vitamins or minerals necessary for optimal function of the detox enzymes.



When the body detoxifies chemicals, it does so at the expense of nutrients. In other words, for every molecule of a pesticide or a chemical that we detoxify, we also use up or lose a certain number of molecules of nutrients: vitamins, minerals, amino acids and essential fatty acids. Some of these are lost forever, so the net effect of breathing a higher level of chemicals is to also become nutritionally depleted.

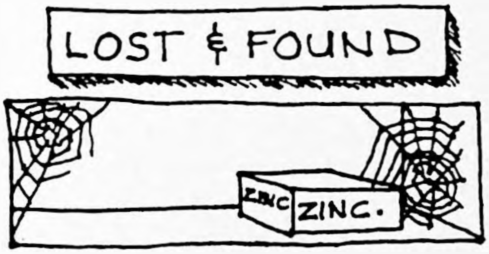
In fact, pesticides are among the worst offenders in terms of being able to convert a previously healthy person into one who is now chemically sensitive. One problem is that many schools and offices use pesticides by contract. In other words, they do not wait to see any bugs; they have someone spray the poison regularly, regardless of activity.

If we have a strong healthful diet, high in nutrients, low in processed foods and sugars, we are usually able to keep up with the daily loss of nutrients from the work of daily detoxification. But people who have been on multiple antibiotics, birth control pills and other medications have a high chemical exposure, eat a lot of sweets, have a high stress environment or have had years of off and on dieting frequently have abnormally low vitamin or mineral levels to begin with, levels which are crucial in the operation of the detoxification pathway.

When you add to this type of compromised person an additional load of renovation chemicals, some systems can no longer cope. Once these deficiencies are discovered, however, with blood and urine tests, they can be corrected and the integrity of the detoxification system can be restored.

As an example, Jane S. was a 34 year old special ed teacher who was moved into one of these renovated closets. Within the first three months, she started having headaches, depression, exhaustion, she couldn't think straight, she was getting recurrent sore throats, and she was placed on multiple antibiotics. Her blood level of toluene, after a day at work, was twice as high as it was after a weekend at home. Measuring some of the vitamins and minerals that are important in the body to detoxify toluene showed that she was indeed low in zinc.

Zinc is in the enzyme alcohol dehydrogenase, which, as the name implies, is important in detoxifying alcohol from the diet as well. It made it easy for Jane to understand why, over the last few months, if she had a glass of wine with her husband and friends, it suddenly seemed like two or three. This is because when the enzyme to detoxify alcohol is deficient in zinc, the alcohol cannot be degraded or metabolized as quickly as normal and it builds up in the system; hence, one drink seems like two or three. The body also uses this zinc-dependent enzyme to detoxify many common indoor air chemicals. By correcting the zinc and increasing the ventilation in her classroom, her symptoms diminished and she lost her concomitant sensitivity to alcohol.



Many cases are not this simple. After a while many people develop sensitivities to indoor molds and chemicals, and commonly eaten foods, as well as have multiple nutrient deficiencies. The phenomenon is called the spreading phenomenon, whereby people suddenly start developing sensitivities to many things that never bothered them before.

If the problem is diagnosed early enough, merely improving the ventilation in the room has solved the problem. Other times, a bake-out can be useful. In other words, the temperature is increased in the room, for example, over weekends, to very high levels. This heat accelerates the oxidizing or out-gassing of the chemicals in the new paint and carpet. Of course, open windows and an overactive ventilation of the area is crucial to ensure that the chemicals get out of the building and are not merely circulated throughout to the other rooms. Unfortunately, though, some materials will not finish out-gassing for years. Often the installation of air purifiers in the small classroom is necessary, too.

The quicker the situation is remedied, the easier it is to turn it off. For, as it continues undiagnosed or untreated, the backed up or unmetabolized chemicals can further damage other enzymes in the body, creating new symptoms and new problems. The condition snowballs and is more difficult to correct the longer it goes unrecognized, since more damage has occurred in the body.

A bakeout, air purifiers, increasing the ventilation and sometimes removing the culprit, such as a carpet, or painting over an oil-based paint with a less toxic water soluble one, can often be all that is needed, if remedied early. The symptoms and solutions vary tremendously with the individual circumstances. Good classroom ventilation, a less toxic home environment, and a healthy detoxification system of the teacher with good levels of all the vitamins and minerals, amino acids and essential fatty acids are the requirements for getting well.

Obviously, there are many documented cases of children, also, who have become chemically sensitive. And with their immature detoxification systems, sometimes they are hit harder. Only, they do not possess the verbal sophistication to be able to say they can't concentrate. Instead, they go on to be labelled learning disabled. Hopefully, as information about the toxic teacher syndrome becomes more well-known, we will be able to nip it in the bud and prevent more teachers as well as students from becoming unsuspecting victims of this 21st century malady.

Sherry Rogers, MD

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FOOD & NUTRITION

GENETIC ENGINEERING

Knowing as we do of the disastrous long-term effects of the agricultural use of synthetic fertilizers, chemical pesticides and other such products, the subject of genetic engineering of trees, plants and animals is of concern to Canadian Organic Growers in the pursuit of sustainable agriculture.

COG in general is unsympathetic to the genetic manipulation of living organisms for use in agriculture, considering it largely unnecessary, environmentally dubious and sometimes ethically undesirable. Furthermore, the push for the use of genetic engineering will undermine slower-paced, sustainable systems already in place. It will be increasingly difficult to establish organic farming beyond the niche stage.

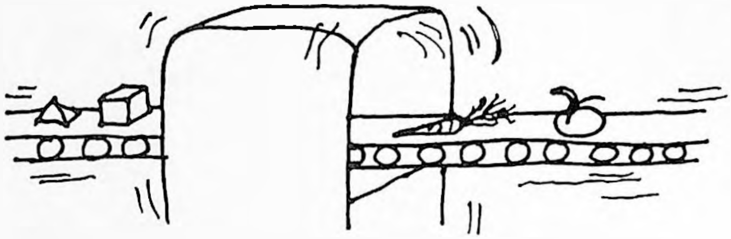
The drive for this "novel" technology has to be examined. Do we need it? Who has asked for it? Who will benefit? What are the risks?

DO WE NEED IT?

We are told greater productivity is urgent, but do we really need to push productivity beyond natural limits when overproduction is already a western problem? In Canada, we have surplus grain looking for a market. Western countries are taking land out of production in set-aside programs. The European Community's aim is to reduce milk production. Farm incomes have been lowered to the point of bankruptcy and many of those that are left are functioning on capital. Surely governments do not allow this if the need to produce more is so desperate? The cry of greater productivity has a hollow sound and a suspect motivation.

WHO HAS ASKED FOR IT?

As to who has asked for this new technology, certainly not the general public, alarmed by air pollution, soil and water contamination, soil erosion, pesticide poisoning, nuclear fallout and other long-term ill effects of technologies introduced as safe and desirable. The public was certainly not consulted in the decision to develop genetic engineering and it is only under pressure, after the event, that the public is being allowed some regulatory consultation.



WHO WILL BENEFIT?

There is no evidence that the new technology will benefit those who need food. It seems that the only sure beneficiaries of genetic engineering will be the international bio-technical companies and the seed distributors, often one and the same thing. The creation of herbicide-resistant crops is a preoccupation of transgenic technology. It would mean a win/win situation for the chemical/seed companies because it would make farmers reliant on engineered seed and would also lead to increased herbicide sales. Nor is the technology necessary. Weeds can be adequately controlled by organic methods.

Although plants and animal patents were previously excluded by most countries, the US Supreme Court decided in 1980 that living organisms are indeed patentable. Previously, these matters were in the university or public domain, but it is now large transnational corporations who lead the race to research, develop and patent products in order to control markets and be assured of investment return. Patenting adds incentive to genetically manipulate animals for commerce. Only large farmers will be able to afford to buy livestock from breeders, as patent fees will be levied on cattle and their progeny. Once again, the small farmer suffers. Patenting will apply also to plants and seeds.

PROTECTION THROUGH LABELLING?

In the rush for commercialization, the cost of labelling genetically engineered food products is considered too costly to be "competitive" and not even necessary. Policy developed by the US Food and Drug Administration and the Competitiveness Council asserts that genetic engineering does not differ significantly from older, more familiar breeding technologies, and treats most plants produced by the process as ordinary produce. Only rarely, when "sufficient safety questions exist" will engineered foods be tested before they are marketed. But what of vegetarians who would not want fish or animal insertions in their food, or those with dietary restrictions for health or religious reasons? People have the right to know how their food is produced and what is in it. If seeds from genetically engineered plants do not have to be labelled, we will not have freedom of choice even in our own gardens and market gardens.

A SIGNIFICANT DIFFERENCE

In very simple terms, the classical method of plant modification that has been followed for centuries involves the slow process of enhancing desirable traits by selective breeding of the plant itself, hybridization (controlled matings) or non-directed plant transformation (mutagenesis). It requires time and considerable space for the trial and error of testing in the field.

With genetic engineering, the modification is done using molecular techniques to insert genes and germ plasm into recipient plants with the use of either a) biological carriers or vectors (the vehicle by which external genetic information is spliced into a host) or b) physical or non-vectored methods. Genetic engineering can introduce a greater diversity of genes into the host and expand the range of microorganisms into which DNA from unrelated organisms can be drawn. The technique, carried out first in the laboratory, is quicker than classical methods, is considered to be more precise and requires much less field-testing space.

It is difficult to see how the two techniques are "significantly the same" when genetic engineering can involve the procedure of splicing genes from such dissimilar species as animals, fish and bacteria into plants.

The advantage of the classical method is its slowness, for we have to remember that in the nature of things slow, as well as small, is beautiful. The speed at which molecular biology is proceeding warrants caution; after all, neither we nor the initiatiors of this revolutionary process know what the long-term effects will be. It may have unforeseen results as harmful to the planet as chemicals and quick-fix pesticides. Proper safeguards and monitoring have to be put in place.

RISKS

There are many risks associated with genetically engineered plants. Experimentation with the introduction of a pesticidal gene (or genes) into the crop plant itself to repel insects raises food safety questions. The evolution of resistant pests is a strong possibility. A new genetic crop may escape from the field to disrupt the surrounding ecosystem or become a weed in other crops. Or the engineered crop may transfer to a compatible weed, creating a super weed. Genetic engineers are also trying to splice insecticide-resistant genes into beneficial insects to keep them from being killed by chemical insecticides. These scenarios are likely to increase, not decrease, the use of synthetic pesticides. And the fact that the results of many gene-splicing experiments do not turn out as predicted can pose an additional risk.

Concern is being raised as to the possibility of adverse effects of gene-altered food to the consumer. Any new product can cause an allergic reaction; the product may have an inserted gene or something to which the consumer already has an allergy.

SAFEGUARDS NEEDED

An August, 1992, report of the US Office of Technology Assessment, A New Technological Era for American Agriculture, says: "Today's public increasingly questions whether technological change is always good or needed and is voicing new concerns about the safety of the food supply, the environment, and the changing structure of agriculture. These issues, as well as declining public confidence in institutions, create an atmosphere in which agricultural biotechnology may not readily be approved for commercial use or adopted by industry. Lack of public acceptance could prevent some technologies from being used even if they are approved by regulatory agencies. To avoid this fate, agricultural biotechnology must meet rigorous scientific standards of safety and efficacy. And institutions regulating these products must satisfy unprecedented demands for accountability."

In light of the above, COG's Biotechnology Committee makes the following recommendations:

a) Proof should be demonstrated of the benefits of and need for the proposed process/product, with no viable alternative, before a permit is granted. Risk assessment must be clearly identified and penalties defined for misjudgement.

b) The process from seed to product release should be strictly monitored. Information and data should be available to the public at all levels. Notice of field testing should be clearly posted on the sites.

c) Gene insertions in all food products should be completely labelled. The public has a right to know.

d) Certification should be granted genetically engineered food after following an inspection agenda as rigorous as that applied to organically grown food.

e) Gene-engineered fish, fowl or animals should not be sold directly to the public without proper identification.

f) The public should be involved and have input into the regulatory process.

g) There should be provision for oversight, accountability and reevaluation.

h) Permits should not be granted for any process that allows the use of pesticides by conventional methods.

i) Regulations should ensure the preservation of plant genetic resources and traditional plant breeding.

Genetic engineering will invade every sphere of public and private life, resulting in radical changes in society and in particular a restructuring of farm and rural life and an even greater concentration of power in the hands of the transnational corporations and financial institutions. Is this what the public really wants?

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This article was written by *Ann Cleary*, Chairperson of the Canadian Organic Growers Biotechnology Committee. It was originally printed in *Cognition*, Box 15, Oxford Mills, ON K0G 1S0 (613) 258-4043.

BUILDING & RENOVATIONS

IS THERE A DOCTOR FOR THIS HOUSE?

At its most basic level, the "home environment" comes down to a matter of air quality. Where your house is located, its condition, the construction materials and methods used, the floor coverings, furnishings and items you bring into it, all contribute to an indoor atmosphere that can be 10 to 200 times more polluted than outdoor air.

One U.S. study identified over 350 different volatile organic compounds (VOCs) in indoor air, but possible contaminants generally fall into a few classes.

Inorganic gases such as carbon monoxide and nitrogen oxides are combustion by-products from furnaces, fireplaces and cigarettes.
Cleaners, solvents, synthetic textiles, carpet, particle board (and numerous other compounds) are sources of the aforementioned VOCs, which "gas-off" over the course of several months or even years. Formaldehyde, a suspected carcinogen and known irritant and sensitizing agent, is a particularly noxious member of this class.

Inorganic particulates such as lead and asbestos (especially for older, pre-1960s homes) have long been recognized as causes of serious adverse health effects, from impaired development to cancer.

Radon gas, a "contaminant" as old as the Earth itself and a recognized carcinogen, can enter the home through cracks in basement walls, sump pumps, and below ground service conduits.

The list goes on.... That drip tray beneath the refrigerator is a veritable mould factory, throwing mycotoxin-containing spores into the air. Electrical appliances and microwave ovens, not to mention nearby power transmission lines, flood our homes and bodies with electromagnetic radiation. Chlorine "purification" of water can introduce trihalomethanes such as chloroform. Your water supply might also carry pesticides and bacteria.

The bottom line is that the home, that safe haven we rely on to restore our physical and mental energies, can exact a heavy toll on our health and well-being.

But not everyone suffers to the same degree. People differ in their chemical sensitivities and allergic reactions, and some spend considerably more time in the home environment than others homemakers and young children being obvious examples. Ed Lowans, national acting president of the Allergy and Environmental Health Association of Canada, is convinced that the "home environment is probably a higher exposure profile than the average office.... It's a primary exposureyou're actually using the chemicals yourself. The home tends to have a fairly significant [toxic] soup...."

Nor are all homes created and polluted equally. Home environmental consultants are recognizing some basic differences between newer and older homes, for example. In the newer house "you wouldn't find asbestos, [and] you wouldn't find lead," notes David Hughes, an environmental consultant living near Kelowna, B.C. At the same time, the environment of older homes can be made new if the homeowner chooses to "cram it full of synthetics...slap new paint on the wall [and] new rugs on the floor."

Newer construction materials and methods used since the 1960s have created a "cascade effect," says Ed Lowans. Particle board replacing wood subfloors, wall-to-wall carpet instead of hardwood flooring, and so on, are contributing contaminants that act synergistically to compound and multiply their individual effects. People are now receiving a completely different and significantly larger chemical exposure than did the previous generation.

TESTING THE WATERS (AND THE AIR, AND THE SOIL...)

If you want to find out just how healthy your home environment is (or isn't), a variety of testing kits are available, most selling for under $30. You can identify the presence of lead on surfaces, in soil and in water; monitor some combustion gases from furnaces or in passive cigarette smoke, perform simple water quality analyses, or check for radiation leakage from your microwave oven. More sophisticated home test kits can measure radon or formaldehyde levels.

The kits invariably come complete with containers, swabs, reagents, comparison charts whatever is necessary to carry out the test and interpret the results. Many are designed for long-term or multiple use. For example, the Verify (TM) WaterTest contains materials for eight separate tests, so you can monitor changes in pH, hardness, alkalinity, and chlorine levels from one week (or month) to the next.

Lead test kits, such as the Verify (TM) LeadTest or the Frandon (TM) Lead Alert kit, provide enough materials to test a wide variety of possible lead sources around the home, from water pipes to children's toys. Other kits such as LeadCheck's (TM) Household Lead Test are designed for spot-checking one or two areas of particular concern where children are likely to be active, for example.

The tests are simple in design, easy to use and take relatively little time: under a minute for the Verify (TM) WaterTest. At most, you may have to prepare a reagent solution, into which you dip a test swab or indicator strip.

The results are fairly precise; many of these same kits are used by government agencies, including the military. They are, however, qualitative, so while you may discover the presence of a contaminant in your home, you won't necessarily know the level of exposure. For example, passive smoke and carbon monoxide detector badges change from light to dark depending on the parts per million concentration of carbon monoxide in the air. A swab turning red is a positive indication of lead; water test strips change colour depending on the value of pH, hardness or chlorine content.

FEATURES OF THE "CLEAN AIR" HOME

- non-petroleum-based heating system, e.g., electric, solar
- hard-finish flooring, e.g., ceramic tile laid with cement mortar, or hardwood
- building materials with minimal VOC content; untreated woods
- plaster surfaces (walls and ceilings), or non-toxic paint
- draft-free building techniques to reduce infiltration of outdoor contaminants
- good location: high quality ambient air and away from heavy traffic, industry and power lines
- a ventilation system to exchange outdoor fresh air for indoor stale air
- an air purification system to remove airborne particulates
- furniture, furnishings and household products chosen for minimal VOC emission
- good natural lighting

Source: Oliver Drerup and others, 1990, Housing for the Environmentally Hypersensitive, CMHC, Ottawa

Home testing kits are available, simple to use and relatively cheap but they're not always necessary. Mark Takefman, president of Healthy Homes Environmental Consulting in Toronto, will gladly provide anyone living in an older, unremodeled home a "100 percent guarantee" that the exterior paint has lead in it, no test required, he adds, observing that "the standard is eight times higher for [Canadian] interior latex paint than it is for American."

Lawrence Cathcart, president of National Testing and Environmental Assessment, Inc. of Kitchener, Ontario, agrees, noting that in Canada "up to five percent of the weight of [interior latex] paint can still be made up of lead."

In any case, say Takefman, "the real problem with leaded paint is not so much when [it's] on; it's when it starts to decompose and come off." In other words, when it's no longer a part of your window sill, but a part of your air or soil. Still, you may want to test for lead elsewhere, such as garden soil, glazed ceramic dishes, or children's painted toys.

TRUST YOUR NOSE

The oldest, and sometimes best, air quality testing kit is your own nose. Aside from being cheap and easy to operate, it is a fairly reliable instrument. "How many times have you said to yourself, 'I need to get out for a breath of fresh air'?" asks Takefman. "It's because something inside of you is saying, 'It's toxic in here, I need cleaner air.' " An odour of stale air is a sure sign that mould spores, VOCs and combustion by-products may be filling your lungs and bloodstream with every breath.

While the presence of some indoor air contaminants is fairly easy to confirm, others such as formaldehyde and radon require more sophisticated testing and laboratory analysis. You can purchase the appropriate test kit and carry out the sampling, but you then have to send the kit away for a lab analysis.

A home radon kit such as that produced by Air Chek (TM) retails for around $22. At $129, a Formaldehyde Vapour Monitor is considerably more expensive, because of the more sophisticated equipment required for analyzing the results. These retail prices include the cost of the lab work and report, which are usually completed in seven to 14 days.

Because of the greater effort and expense involved, it is important to maximize the likelihood of finding a problem if one exists. For radon, test the basement and bathroom; for formaldehyde, the main living and sleeping areas should be primary targets. In all cases, follow the manufacturer's instructions closely, especially regarding where, when and for how long the test was conducted. This will ensure that the lab analysis is carried out correctly.

Tests should be performed when the house is sealed and ventilation is minimal, providing a "worst case" scenario.

Testing kits are not a sure-fire solution for the sick home and the hypersensitive individual. Ed Lowans points out that while test kits "are valid...they are also specific, whereas sensitivity is a multifaceted beast." Home testing is a process of "whittling away at the edges [to discover] pieces of the problem." But you won't necessarily discover all of the pieces, or even the most important ones - the ones that are causing your headaches, memory loss, respiratory problems and so forth. Lowans also cautions that a lot of testing is done "because those are the tests that exist, not necessarily because those are the tests that will answer your questions." Consequently, some tests may give negative results and a false impression that your home is healthy.

AN OUNCE OF PREVENTION...

If you do find that your home is contaminating the air you breathe, you're going to want to do something about it. And if your house receives a clean bill of health, you'll certainly want to keep it that way. It's important to remember that the home is not only your most important environment, it's also the one where you can exert the most influence. "There's all kinds of things throughout the house that folks can manage and control," says David Hughes, "whether they live in the old house with the spiders and the leaky [gas] system," or the new house filled with synthetic furniture, carpet, etc. Source control is the most economical way to regulate air quality in the home, although with over 60,000 chemicals in common use worldwide, it may not be possible to completely avoid VOCs and all the rest. But you can minimize your exposure by performing a household audit, says Ed Lowans. "go through your house and literally open the cupboards.... Look at every item and get rid of anything you don't need that can potentially cause problems."

It's not difficult to replace common chemical cleaners and personal care products with friendly alternatives such as Nature Clean or Next Generation. These are available in any health food or "green" store, and are quickly finding their way into the general market.

Buy furniture made of solid wood with natural coverings rather than particle board draped with synthetic upholstery. Cooking and heating electrically or with sealed combustion appliance go a long way toward reducing combustion gas exposure. Low tox. paints and polyurethane hardwood floor coatings are available; CMHC can provide a list of distributors for these products.

Two alternatives to source reduction should be seen as basic goals for all homeowners. Regulating ventilation and relative humidity are probably the best measures you can take to improve air quality.

While an open window can make a big

SOURCES AND HEALTH EFFECTS OF COMMON HOUSEHOLD POLLUTANTS

POLLUTANT	POSSIBLE SOURCES	HEALTH EFFECTS
Moulds (fungus, mildew)	damp surfaces in bathrooms and basements, areas of poor air circulation, in closets, beneath sinks, and fridge drip pans	spores / mycotoxins causing cusing allergic reactions, can impair breathing and cause lung damage
Inorganic Gases (carbon monoxide, nitrogen dioxide, chlorine, others)	all sources of combustion (such as gas and wood stoves, fireplaces, furnaces, smoking)	impaired breathing, intoxication, death (CO poisoning)
Volatile Organic Compounds (formaldehyde, benzene, xylene, numerous others)	building materials, esp. particle and press board, solvents and cleaners, floor coverings, plastics, paints, toiletries, pesticides, etc	attacks central nervous system and lungs, many VOCs are known carcinogens
Organic Particulates (dust mites, pollen, animal dander, bacteria and viruses)	plants and pets; family, friends and neighbours	impaired breathing, migraine headaches and other allergic reactions
Inorganic Particulates (asbestos, lead and other heavy metals, natural and synthetic fibres, combustion particles)	insulation, paint, tobacco and wood smoke, industrial incineration	respiratory illness, impaired central nervous system, cancer
Radon (gaseous decay product of uranium in Earth's crust, atoms attach to airborne dust and moisture)	through cracks in foundations, walls and flooring, gaps around service pipes, basement sumps, private or local well water	increased lung cancer risk (thought to cause five to 10% of lung cancer deaths)
Electrormagnetic Radiation	overhead transmission lines and tranformers, electrical appliances, microwave ovens	increased risk of cancers, such as such as leukemia; children and pregnant women most at risk

difference, that options is not really practical in the dead of a Canadian winter. The most effective (and costly) system involves a well-filtered air-to-air heat exchanger coupled to strategically placed spot ventilation fans in kitchens and bathrooms, for example. These systems ensure balanced air pressure in the home (minimizing backdrafted combustion gases), while reducing heat loss during the exchange of stale indoor air for fresh outdoor air.

Good ventilation is also the most effective way to maintain your home's relative humidity in the optimal range of 40 to 50 percent. Relative humidity at levels of 60 percent and beyond increases fungal growth, and provides a favourable environment for the survival and reproduction of dust mites, bacteria and viruses. Higher humidity also increases the rate of VOC out-gassing. Below 30 percent, the incidence of respiratory problems, such as asthma, increases.

What actions you have to take to improve and maintain a healthy home environment will naturally depend on a number of factors, from how polluted your home is to how sensitive you and your family are. It may be as simple as removing aggravating substances and improving ventilation, or it may required major remodelling and refinishing.

As it did in Bill's case. Getting rid of all household cleansers or personal care products that gassed-of VOCs; installing a polyester filter in the furnace to capture even the most minute particulates; removing carpeting and putting in hardwood floors: these were just a few of the changes Bill made to his home.

Today, his furnace is kept running full-time to draw in fresh air, and most windows are left partly open. Three good-sized heater fans are used to introduce warm, fresh air constantly. "You name it," he says, "I've spent tens of thousands of dollars, both on my home and on my personal treatments." It's been money well spentsince last fall, Bill has once again been sleeping indoors.

Written by *Richard Lazenby*, associate editor of *Earthkeeper*. Reprinted with permission from *Earthkeeper*, April/May, 1993, P.O. Box 1649, Guelph, Ontario N1H 6R7 (519) 763-9357.

RECENT RESEARCH
SICK BUILDINGS AND NEUROPSYCHIATRIC PROBLEMS

Ninety-eight healthy office workers were given extensive neuropsychiatric tests in both a well-ventilated office building and a poorly ventilated "sick" office building. Each worker served as his or her own control in this study. Under the poorly ventilated conditions, the workers' scores were significantly worse on memory, concentration, and other neuropsychiatric parameters as compared to these same workers' test results in well-ventilated buildings.

Ann Middaugh, et al., Journal of Occupational Medicine, December 1992

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MICE "TEST" SICK BUILDINGS

It is currently economically unfeasible to measure levels of many air pollutants in office buildings. A new bioassay method uses mice to determine air quality in buildings. Mice are less sensitive than humans to air pollution. However, lab mice show clear signs of lung irritation and respiratory distress when they are given air collected from many of today's poorly ventilated or "tight" buildings.

Rosalind Anderson, Indoor Air Review, January 1992

Reprinted with permission from *The Human Ecologist*, summer 1993 (Sick...) and fall 1993 (Mice...) P.O. Box 49126, Atlanta GA, 30359-1126. (404) 248-1898.

OUTDOOR AIR

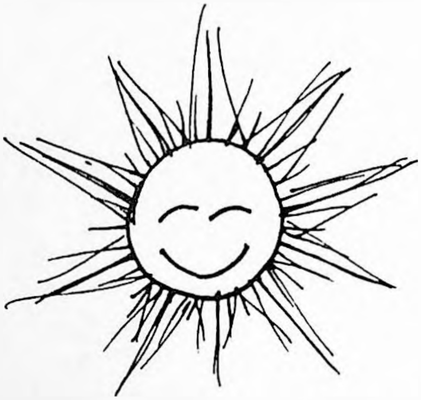
SUNSHINE - LET IT IN

My favourite comic books are Herge's series on Tin Tin the young reporter. I have read every Tin Tin book in English, and some in German and French as well. In the first Tin Tin story I read, Tin Tin was caught by some primitive tribe. He had noted, however, the date of a solar eclipse, and 'commanded' the sun to disappear on the appointed day. His captors released him. With the depleting ozone layer, many today seem to want the sun to disappear. This is dubious thinking.

With our Promethean prowess, we have managed to change the nature of sunlight, although unintentionally. Sunlight itself actually has not changed, but what gets through to the surface of the Earth has. About 20% less sunlight gets through now compared to 100 years ago. The composition of what comes through has changed as well. Most notably, more of the harmful short end of the ultraviolet range now comes through, as a result of ozone depletion. This has led to calls for drastically reduced exposure to the sun, long sleeves, sunscreens, sun glasses, and the like. Statistics are trotted out on the increase in skin cancer attributable to time spent in the sun. Such statistics are misleading.

The statistics are, no doubt, reasonable calculations of trends in our society. But I want to point out two things wrong with this statistical parading. In its linear linking of one single item, skin cancer, to another, exposure to sun, misses two points:
(1) other factors that contribute to skin cancer
(2) the effect of sunlight on other things than skin cancer.

SKIN CANCER NOT INEVITABLE



Some statistics attribute a certain degree of increase in skin cancer to a degree of increase in ultraviolet exposure. They show that an average increase in one variable can be linked to an average increase in another variable. Averages can be misleading: you can drown in an average depth of 1 cm water. There might be other factors that, together with ultraviolet light, lead to increased incidences of skin cancer. Consider whether skin cancer is increasing in all cultures. I strongly doubt this. Among many peoples who spend lots of time outdoors, cancer of any form is unknown. If the effect of ultraviolet light is not universal, then other factors are at play. What might they be? Well, how about considering the things known to increase the incidence of cancer: fats in the diet, smoking, lack of exercise. Maybe the use of oils on the skin, something correlated with exposure to the sun, also contributes. (Why not? Fats are definitively linked to cancers.) I do not have the answers here. But I suggest that maybe ultraviolet exposure only contributes to skin cancer when other conditions are met. We should minimize these other lifestyle factors, and reap the benefits of the sun.

SUNLIGHT AS ANTICANCER AGENT

Just as overlooked in linking sunlight to skin cancer is the overall effect of sunlight. The biochemist Johanna Budwig calls sunlight a cosmic power against cancer (in her book Kosmische Kraefte gegen Krebs). The incidence of skin cancer is (as yet anyway) small compared to the major killers such as lung, breast, and colon cancers. Sunlight has recently been linked to a decrease in major cancers. Sunnier climes have lower cancer rates. The sun belt (southwestern U.S.A.) has lower cancer rates, despite eating fewer vegetables and just as much meat as the northeast. Interestingly, smoggy L.A. is an exception that perhaps proves the rule.

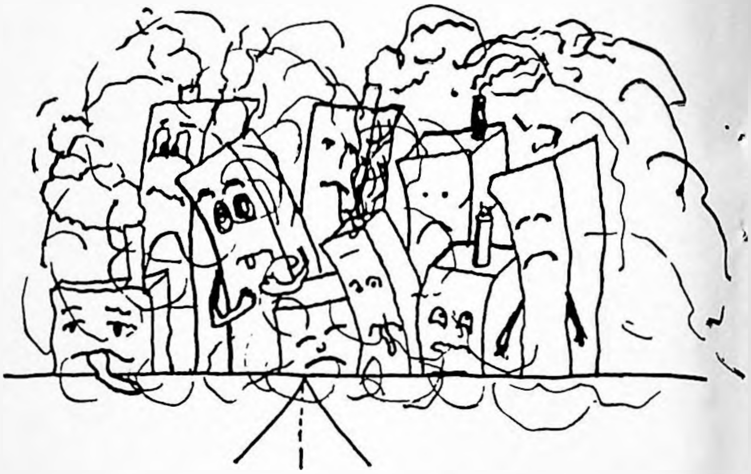
We can speculate on what mechanisms are at play here. One factor considered is vitamin D, which sunlight helps to generate in the body. But I can think of others. John Ott's research suggests that sunlight stimulates the immune system (see his book Health and Light). The eye has a direct link to the hypothalamus, the part of the brain that sits right over the master pituitary gland. The long range of the ultraviolet spectrum is thought to be crucial here. (It is the short range ultraviolet that is especially harmful.) I must point out that (some) ultraviolet light does not go through glass. Sunlight through glasses, contact lenses, and windows is useless for this purpose. Full spectrum lights that transmit the long-wage ultraviolet range can help in this regard, and Ott recommends them. They are now readily available in fluorescent and incandescent versions. Also important to note is the fact that directly looking at sunlight is not required for this pathway, and it is not recommended. Anytime we are outside, ultraviolet light is bouncing off everywhere. You can be reading a book in the shade and get ultraviolet light in the eyes. And light levels outside, even in the shade, are orders of magnitude above the brightest indoor lighting.

TAKE CARE

So I recommend lots of time outdoors, preferably doing exercises rather than lying down hiking, gardening, bicycling, or whatever pleases you. But do take care. This is not a license to go out and get burned, something that is extremely harmful. When it is extremely hot, consider wearing long sleeves. A hat with brim all around is recommended. Do not overexpose yourself when you are not used to it. And remember that the fair-skinned are especially sensitive to sunlight.

Finally, I am not saying that the current ozone depletion is OK. It does contribute to skin cancer. But to concentrate on skin cancer misses the point. If enough ozone is depleted, the ultraviolet radiation getting through will foul up the reproduction mechanisms of single-celled creatures in the sea. We do not know at what stage this will happen. But we are not dealing with the trivial case of skin cancer here. With enough ozone depletion, all aerobic life is doomed.

Reprinted with permission from *The Canadian Natural Hygiene Society News*, July/August 1992, 14 Lynn Haven Road, Toronto, Ontario M6A 2K8 (416) 781-0359.



ALLERGIES AND AIR POLLUTION

Allergists and those with allergy who live in big cities have wondered why their hay fever and asthma are more severe than those who live in the country. There is an increasing interest in finding out just what role, if any, pollution plays in asthma.

A new study from St. Bartholomew's Hospital in London, England, reveals some interesting information. They put people with allergies into clean rooms (sealed chambers) and exposed them to the gases found in car exhaust. After several hours, the people were exposed to their pollen allergens. A control group was exposed only to the pollens.

Those who had been exposed to the combination of car exhaust emissions and pollens experienced symptoms three times worse than the control group that had only been exposed to pollen.

The finding was that exposure to pollution appears to make the body produce five times the number of cytokines compared to those in the control group who were not exposed to pollution. Cytokines are chemicals in the immune system. Their purpose is to facilitate communication between cells. The presence of this large number of cytokines possibly explains the increased severity of allergy symptoms.

Written by Ken Chang. Reprinted from Allergy/Asthma Information Association Quarterly, Volume 29, Summer 1993.

AIR POLLUTION

Environment Ontario measures air quality at a number of centres across the province by monitoring six pollutants. A brochure from Environment Ontario characterizes these pollutants as follows:

Carbon Monoxide (CO): A colourless, odourless, tasteless gas mainly resulting from automobile emissions. CO replaces oxygen in the red blood cells and a lack of oxygen affects the functions of the brain. First symptoms are impaired perception and reflexes. At elevated levels CO can also aggravate chronic heart and respiratory diseases.

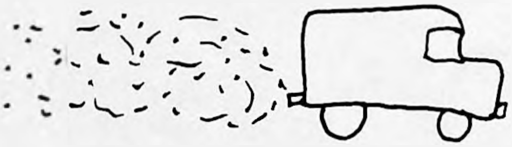
Nitrogen Oxide (NO2): A toxic, irritating gas produced from the nitrogen oxides that are emitted by all combustion processes (e.g., heating systems, automobiles, etc.). It can combine with water to form acid rain, and contributes to the formation of ozone or photochemical smog. Nitrogen dioxide can affect health, reduce visibility, corrode metals and damage vegetation.

Ozone (O3): A pungent, colourless gas produced by the sun's photochemical action on hydrocarbons and nitrogen oxides. Ozone also occurs naturally. In either case, it can travel great distances. High levels of ozone, by itself or combined with other pollutants, can cause eye irritation, breathing difficulty, and decreased visibility, and can damage vegetation.

Sulphur Dioxide (SO2): A colourless, pungent gas that smells like burned matches. It is formed by the combination of sulphur and oxygen when sulphur-bearing fuels are burned. The SO2 combines with water to form acidic compounds that can irritate the eyes and lungs, corrode metals, and damage vegetation. It also contributes to acid rain.

Suspended Particles (SP): These are small particles of solid or liquid matter that remain suspended in the air in the form of mist, dust, aerosols, smoke, fumes, soot, etc. They can cause soiling, aggravate respiratory problems and decrease visibility.

Total Reduced Sulphur (TRS): These sulphur-containing compounds, for example, hydrogen sulphide, originate from industrial sources such as pulp and paper mills, coke ovens and refineries. TRS can produce a noticeable rotten egg-type odour problem when present in the air at levels as low as 10 parts per billion (ppb). They do not have a health impact at levels normally measured in the ambient air.



PARTICLE POLLUTION - IT'S SERIOUS

Recent epidemiological studies by the U.S. E.P.A. and the Harvard School of Public Health have focused on particle pollution. These particles are very small (10 microns or less) and are mainly thrown into the air by industrial plants and diesel vehicles. It seems that particle pollution is the most serious type of outdoor pollution in that death rates are increased by 7-16% for each microgram of particle pollution. "The deaths occur mostly among children with respiratory problems, people of all ages with asthma, and the elderly with illnesses like bronchitis, emphysema and pneumonia." (New York Times, August 19, 1993)

BOOK REVIEWS

NONTOXIC VIEWS

We welcome your review of recent works. If you have read a book or seen a video that you would like to review, please do so and send it to Betty Auslander, 85 Walmsley Blvd., Toronto, Ontario, M4V 1X7.

Lorenzo's Oil. The feature film Lorenzo's Oil, which opened at the end of 1992, is an inspiring and instructive testimony to one family's spirit of determination in confronting a rare illness and an obstructionist medical establishment. This gripping, must-see movie tells the story of a couple whose young son has a rare, fatal genetic disorder that destroys myelin, the protective sheath that surrounds nerves.

Many neurotoxic substances, including some pesticides, may damage the myelin sheath, and people with pesticide poisoning, chemical sensitivities, and multiple sclerosis may have anti-myelin antibodies.

Jet Smart: Jet Lag, by Diana Fairechild.
182 pp., 1992. $12.95 (U.S.) Flyana, P.O. Box 300, Macawao, Maui, HI U.S.A. 96768 (808) 572-5252

Diana Fairechild is a former flight attendant who was permanently grounded by toxic response syndrome (chemical sensitivity), which her physician attributes to pesticide exposure on international flights. Her thorough book tells you more than you may want to know about flying and how to protect yourself.

Fairechild writes about pesticide spraying (mandatory on many international flights, and ordered by the USDA prior to takeoff of some domestic ones), diesel exhaust, electromagnetic and radiation hazards, ozone, dehydration and oxygen deprivation at high altitudes, noise levels, and other insults. Jet Smart is now available at airports!

Chemical Sensitivity: A Guide to Coping with Hypersensitivity Syndrome, Sick Building Syndrome, and Other Environmental Illnesses, by Bonnye L. Matthews, 320 pp., 1992. $29.95 (U.S.) McFarland & Co., Inc., Box 611, Jefferson, NC 28640 (919) 246-4460.

This truly amazing book provides a realistic, careful introduction to chemical sensitivity and its impacts, and excellent gentle guidance on how to deal with daily life, including the frustrations of not functioning as one used to. Written by a determined patient who got sick from low-level workplace exposure, this valuable book emphasizes how to document one's case and encourages assertiveness and knowledge in the inevitable medical, insurances, and legal battles related to survival. Contains a complete resource listing, bibliography, glossary, detoxification and medical study information, and numerous expert opinions on chemical sensitivity. I am impressed by its well-reasoned tone.

The above three reviews are from *NYCAP News*, 33 Central Avenue, Albany, NY 12210 (518) 426-8246.

A Consumer's Dictionary of Household, Yard and Office Chemicals, by Ruth Winter, 1992.

In the few weeks I've owned A Consumer's Dictionary of Household, Yard and Office Chemicals, I've already used it to gather information for school administrators, legislators, my community's environmental committee, the media, and my family and friends. No longer must I dig through files to find words to explain verbally or in writing why specific, commonly used products may be hazardous to the average person or the person with multiple chemical sensitivities.

Ruth Winter's book is authoritative, well-researched and documented, and easy enough for a lay person to read and understand. The dictionary of more than 2,000 chemicals and brand names follows the format of the author's A Consumer's Dictionary of Food Additives and A Consumer's Dictionary of Cosmetic Ingredients. The introduction presents the extent of the problem, the government and industry regulation or sad lack of regulation of the chemicals, and what consumers can do to protect themselves and their families. The listings include the chemical, its derivation, use and benefit, or hazard and substitutes. The author prominently mentions HEAL and refers to multiple chemical sensitivities throughout the book.

The above review was written by Julie M. Accola and is reprinted from The Human Ecologist, P.O. Box 49126, Atlanta, GA 30359-1126 (404) 248-1898.

TIP SEEKERS

QUESTIONS...

...answers and tips that you may have on "safer" products or lifestyles are welcome. Please write to: The Tip Seekers, 85 Walmsley Blvd., Toronto, M6V 1X7.

QUESTIONS AND ANSWERS

Q. Where can I find tolerable clothing?

A. Tolerable clothing can be a difficult necessity to obtain when one has multiple chemical sensitivities. The reason for this is the numerous chemicals required to make raw yarns into fabric as we know it. Sensitivity to these chemicals leaves many of us feeling like ragged Cinderellas waiting for a fairy godmother to appear! There is no easy answer to this problem, but as an experience fashion designer with chemical sensitivities, I do have some insights to offer.

WHY COTTON IS KING

A survey of popular apparel fibers makes it obvious why cotton is the preferred choice of chemically sensitive individuals. Most synthetic fibers are made from coal and petroleum derivatives, and therefore provoke reactions.

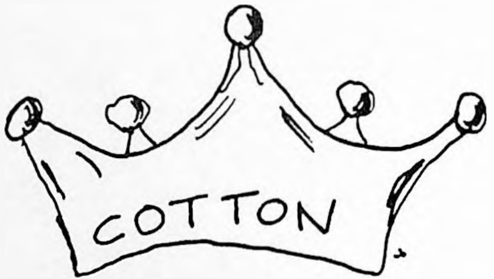
Polyester (Fortrel, etc.) is the worst offender. It is made from long-chain synthetic polymers of esters of a dihydric alcohol and terephthalic acid. Not a very appetizing recipe!

Nylon (Antron) is made of long-chain synthetic polyamides and is tolerated much better than polyesters if not given a permanent chemical finish.

Spandex and Lycra are polyurethane derivatives and can sometimes be tolerated in the small amounts used in stretch fabrics, usually 5 to 8 percent, although 10 percent and above may cause reactions.

Acrylics are polycrylonitriles, suspected of being carcinogenic by the EPA.

Rayon, the oldest synthetic fiber, dating from the 1920s, starts out as wood pulp or cotton linters, but is then dissolved in acetone or ammonia and extruded through spinnerettes (shower-heads) to form fibers. Rayon is so weak when wet that it requires chemical finishes just to survive laundering.



Silk is a natural-protein fiber, but like synthetics it carries an electrostatic charge that attracts positive ions to the body. Most commercial silk is treated with chemicals for washability. Real "sanding" is a harmless mechanical process, but "sanded silk" is achieved through chemicals alone. The largest U.S. silk importer washes all his fabric in bounce softener, and his mill in China refuses to tell even him just how they finish the fabric.

Cotton is a 100 percent natural vegetable fiber that carries no electrical charge, is soft, comfortable, washable, and durable. The problem is that all cotton must be chemically processed to become the soft fiber that the consumer loves. Although cotton is one of the most heavily sprayed crops in the United States, much of the pesticide and herbicide is bleached out or washed away during the manufacturing process. The chemical residues of these processes constitute the major sensitivity problems. Yet without these oils, waxes, and chemicals, cotton could not be knit or woven into fabric.

Let's take a closer look at the processes involved.

CHEMICALS ARE INEVITABLE

Only in the spinning process is cotton untouched by chemicals or oils. This is to ensure even dyeing, should the yarn be package dyed (dyed on cones) for what is termed "yarn-dyed" fabrics. Some better fabrics are made of these yarns that have already been dyed on the cone, especially plaids and stripes, but most of the fabric used in the United States is dyed in yardage form after the fabric has been knit or woven in the natural color. This is called "piece-dyeing."

After spinning, the yarn receives a polyvinyl alcohol sizing to make it weavable. After weaving, the fabric is then bleached. half the companies in this country use hydrogen peroxide, but half still use chlorine. The sizing is then removed from the fabric with a detergent. Next is "scoured"washed with sodium hydroxide. Finally, it is piece-dyed, often with formaldehyde-fixing agents, but these are removed by another washing. The last step is finishing, and this is where a lot of sensitivity problems begin. A urea-formaldehyde product which cross-links molecules is routinely applied to all United States cottons to reduce shrinkage and wrinkling. Cotton is a fiber designed by nature to absorb, and heat is used to lock finishes into the fiber. The molecule of finish is small enough to penetrate the fiber. When heat is applied, this molecule expands and permanently "trapped" in the fiber. That is why it cannot be washed or drycleaned out.

"Pure finish" indicates that nothing has been applied to the fabric at this point, but this does not always guarantee wearability for the chemically sensitive. Detergents and softeners are always used in making fabrics, and some of these never wash out completely. Formaldehyde is not the only culprit.

Knitted fabric goes through similar processes. To be knittable, yarn must be waxed and oiled. The knit fabric is then washed in detergents and softeners. An anti-curl chemical is added to the wash for all jerseys and most fleeces. Knit goods that are piece-dyed after knitting follow the same course as woven fabrics. Yarn-dyed knits are washed, framed, steamed, and finished with heat and, usually, formaldehyde resin.

Sweaters and some circular knits are just washed with detergent and softeners and tumble-dried to remove oils and to reduce shrinkage. These make them "best bets" for many. No finish is put on them, but again their wearability depends on the chemicals used to wash and soften them. (The low-foam industrial detergent Aresolve is one of the worst offenders around.) As with wovens, heat is used as part of the processing and can actually lock chemicals into the fiber.

As you can see, many steps involving chemicals are used in making the fabrics we wear. Even the purest organically grown cotton must go through most of these processes to become fabric. Beware of claims that "no chemicals are used on this fabric from planting of the seed to the arrival at your door." This is virtually impossible and constitutes false advertising, in my view. It is impossible to knot yarn without waxing and oiling it, and the oil must be washed out with some kind of detergent. Jerseys must be de-curled to lie down on a table and be cut. Even with the best of intentions, some chemicals must be used. The question is: Are you sensitive to the particular chemicals used to make a particular fabric?

SOME POSSIBLE SOLUTIONS

In view of the above information, what is poor Cinderella to do?

"Garment-dyed" clothing may offer a solution to the clothing dilemma if you can find a brand that uses dyes and detergents that you can tolerate. The beauty of garment dyeing is that the fabric must be finish-free to accept the dyestuffs. No formaldehyde finish here! The downside is that the excess dye is then washed out with detergents and sometimes softeners.

At first I thought that another answer was to buy "greige goods," undyed fabric right off the loom. Theoretically, I could wash off the oils, waxes, and yarn sizing with my own brand of detergent and make clothing. Unfortunately, the grey goods shrank enormously with each successive washing and became stiff as a board! I realized that American fabrics are designed and woven to be complemented with chemical processes and finishes. On their own, they are unworthy of a needle.

There is a reason for this: The market demands it.

The typical American closet contains many items of inexpensive clothing, which are discarded frequently to change an entire wardrobe. American manufacturers give us exactly what we demand, which means using inferior, short-staple cotton (which requires chemical processes and finishes to be presentable) in order to keep prices down.

Europeans, on the other hand, buy very few clothing items, all of high quality, and live in them for years. It is not uncommon for a French secretary to own one Givenchy suit and wear it to work every day for four years, changing her look with accessories. European cotton fabrics are made from superior Pima (long-staple) and Egyptian cottons, which have a naturally silky hand. The yarns are spun into fine sizes and woven tightly, producing a fabric that is not only soft and silky, but almost indestructible. These fabrics do not need chemical enhancement to make them feel good. They have simple starch finishes that wash out completely after several washings.

To sum up, the best bets for clothing fabric-sensitive Cinderellas are generally cotton sweaters, garment-dyed clothing, "pure finish" fabrics, Egyptian cottons, and Pima cottons from developed countries. (Those imported from the Third World are very often fumigated on board ship.) It is important to note that not all European cotton is formaldehyde-free, but there is a good chance that the finest, most expensive will be. And there are still dyes and detergents used in the processing to consider.

CARING FOR YOUR CLOTHES

How you care for your clothing has a lot to do with how well you can tolerate it, as well as how long it will last. Here are some suggestions.

Consider your water.
If you seem to be sensitive to almost all of your clothing, part of the problem could be the water you're using to wash them. I need two filters to shower, but four to do laundry, because my clothing is exposed to water much longer than I am. Remember, cotton is designed by nature to absorb. It can and does absorb chemical pollutants from your tap water. The tap water in New York City is so bad that I can smell the pollutants even when my laundry is dry. Rust from corroded pipes will also remain in your clothing, another possible source of reaction.

Check your detergent.
Another factor to consider if you seem to be sensitive to most of your clothing is your cleaning agent. It's possible to tolerate laundry detergents poorly and not know it. No washing agent is foolproof. Some people can't even tolerate baking soda or vinegar. One alternative for the super-sensitive is food-grade hydrogen peroxide, 1 to 1 1/2 tablespoons per load. You can even use 2 to 3 tablespoons per load as a presoak to eliminate some of the chemical finishes before laundering. You could also use a tolerated shampoo in a pinch for washing clothes. Experiment for yourself. Some people find they can use commercial detergents such as liquid ALL: others report good results with AFM Carpet Cleaner.

It's helpful to find at least two detergents that you can tolerate and rotate them monthly. Be aware, too, that the amount of detergent you use could be critical. You may, for example, be able to tolerate one tablespoon of detergent per load, but not two. It's a good rule to use as little detergent as possible, just enough to produce a few suds while the machine is agitating. If you use too much, it may not wash out completely, and you may react to the residue.

Temperature can make a difference.
For some people, laundering and drying temperatures can be important. Heat is a catalyst for chemical reactions between fibers, dyes, finishes, and detergent. For that reason, garments washed in cold water and line dried may e easier to tolerate. (Line dry indoors during pollen season.)

Ironing caveats.
If you are sensitive while ironing, you could be reacting to detergent residues in the fabrics. You could also be reacting to contaminants in the water you're using. Use only tolerated drinking water or distilled water in your steam iron. That

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LEGAL ISSUES

SPECIAL VOTING RULES

It may be more than the candidates which make you sick at election time. If you dread the thought of testing the indoor air quality at your polling station in the next federal election, you have an option. You can vote in your own home! It's a two-step process.

After an election has been called, you phone the Elections Canada office in your riding and ask for a registration form and guide. The registration form and documents may be returned to the Elections Canada office for your riding at any time up to 6 p.m. on the Wednesday before election day. Once registered, you may only vote by special ballot, not at the regular polls.

Then you will receive a voting kit. The voting kit includes instructions, a special write-in ballot, and a set of envelopes, which ensure the legitimacy and secrecy of the ballot. The deadline for return of the ballot is 4 p.m. on the Friday before election day.

If you have further questions, call Deborah Cousins, project coordinator for special needs groups, at 1-800-267-VOTE or your Elections Canada office.

Betty Auslander

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way you also avoid heat-pressing contaminants into the fabric.

Your problem could be with the iron itself. Some irons employ a sealing gel in the water chamber that can cause problems for the sensitive when the iron heats up. SunbeamTM and NorelcoTM irons apparently do not contain this gel.

You may want to remove your commercial ironing board cover and replace it with one made of barrier cloth padded with flannel. Secure it to the underside of the board with shipping tape. Let your new iron "steam out" for a day or so before you use it.

One final observation: Remember that exposures you get from wearing and caring for your clothing are part of your total exposure burden. Reducing chemical exposures from other sourcessuch as air, food, and watermay increase your tolerance for fabrics and fabric-related exposures.

Written by Doris Brunza. Doris has worked as a fashion designer in New York for 20 Years. She now heads her own small company that designs and manufactures hand made, hypo allergenic clothing.

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Other sources of 100% cotton bedding and clothing are:

- Helen Turner, Box 151, Perdue, Saskatchewan, S0K 3C0.
- Cathy McDiarmid, Born To Love, 15 Silas Hill Drive, North York, Ontario, M2J 2X8.
- Textile Connextion Inc., (fabric & knitting yarns), 26 Harding Blvd., Richmond Hill, Ont., L4C 1S8, 905-508-7539.
- Nature's Clothing Compnay, 26 Harding Blvd., Richmond Hill, Ont., L4C 1S8, 905-508-7539.

Catalogues are available from both sources.

PROFESSIONAL LISTINGS

PROFESSIONAL LISTINGS

We are developing lists of health professionals who work with the environmentally sensitive. If you are interested in having your name put on this list, send a letter describing the kind of services you provide to Betty Auslander, 85 Walmsley Blvd., Toronto, Ontario, M4V 1X7.

We are providing this list as a service to our members, however each member should decide very carefully who s/he wants to work with. Inclusion in these listings does not imply endorsement by the AEHA.

MEDICAL DOCTORS IN THE CANADIAN SOCIETY FOR ENVIRONMENTAL MEDICINE

Doctors, who are members of the Canadian Society for Environmental Medicine, mainly work with patients that have environmental sensitivity disorders like multiple chemical sensitivity, asthma, hay fever, dermatatis, chronic fatigue syndrome, candida and lupus. Most of these doctors have taken extra training in this area through the American Academy of Environmental Medicine.

J. Aubry, M.D., Sturgeon Falls, 705-753-2300
P. Bright, M.D., Mississauga, 416-564-0122
L. Gilka, M.D., Ottawa, 613-820-6118
R. Greenberg, M.D., Vancouver, 603-224-0196
A. Haque, M.D., Regina, 306-757-6688
J. Krop, M.D., Mississauga, 416-564-0122
J. Maclennan, M.D., Dundas, 416-628-8241
R. Mickelson, M.D., Glouchester, 613-830-5764
J. Molot, M.D., Ottawa, 613-235-6734
T. Polevoy, M.D., Waterloo, 519-725-2263
W. Tetz, M.D., Lacombe, 403-782-3513
M. Zazula, M.D. Mississauga, 416-276-7754

OTHER HEALTH PROFESSIONALS

H. Adirim, DDS, ND, Toronto 416-922-6866
F. Anello, M.D., Cambridge, 519-653-3731
N. Beserminji, MD, DN, Toronto 416-265-3309
R. Chan, MD, Toronto 416-223-8666
L. Christian, ND, Willowdale/Oakville 416-226-4478
D. Colson, DDS, Toronto 416-482-2133
J.P. Grod, DC, Etobicoke 416-695-3613
K. Kerr, MD, Toronto 416-927-9502
I. Korman, MD, Willowdale 416-222-3175
M.V. Miller, DDS, ND, Toronto 416-293-4119
A. Powell, MD, Toronto, 416-469-4250
Z. Rona, MD, Toronto 416-534-8880
G. Roth, DC, ND Toronto 416-234-1888
J. Seale, MD, Ottawa 613-830-1298
K. Wolch, DMD, Toronto 416-281-4746
A.A. Wood, DC, ND, Newmarket 905-853-7151

DC - Chiropractor
ND - Naturopath
DDS - Dentist

ECOLOGICAL (ORGANIC) GARDENING INFORMATION: 1-800-268-2000.

JOB ACCOMODATION NETWORK

Information on how to go about getting your employer or landlord to accomodate your special needs. Call 1-800-526-6262.

BUILDERS & RENOVATORS

Green City Design, Toronto, 416-691-2477
Greg Allen & Associates, Toronto, 416-962-6193
Lowans & Stephen, CALEDON 519-940-0964
Rulestone Renovations, Toronto, 416-694-6016

CONSULTANTS

B. Auslander, Household Environmental Audits. 416-487-2061.
M. Burstyn, Patient information about chronic illness. 416-832-0789.
B. Small, expertise in building products that contain minimal levels of chemical irritants. 416-649-1356.

CALENDAR OF EVENTS

Toronto AEHA support group meeting April 2, 1994. Meeting to be held at 85 Walmsley Blvd., Toronto. Call Betty at 487-2061 for further information.

THE TRADING POST

The purpose of Trading Post is to list products that you want to buy or sell. The products should be suitable for the environmentally sensitive. Please note that this Trading Post section will not list products from manufacturing or distribution companies. If you have anything you want to buy or sell, write, Betty Auslander, 85 Walmsley Blvd., Toronto, Ontario, M4V 1X7.

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CLEAN HOUSE FOR SALE

Mr. and Mrs. Charles Watson
S.S. 2, Site 9, Comp. 51
Penetangui shene Ontario, L0K 1P0
705-549-2630

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MEMBERSHIP APPLICATION

Membership including a subscription to the Quarterly is $25.00 per year.

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Total	______

Make cheque or money order payable to: Allergy and Environmental Health Association, P.O. Box 40604 Burlington, Ontario, L7P 4W1.

Comments ______________________

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AEHA BRANCHES

NATIONAL

AEHA CANADA

P.O. Box 40604
Burlington, Ontario, Canada
L7P 4W1
1-800-695-9271

BRANCHES

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c/o Jean Stevens
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V0K 1W0

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FX: 613-725-1070

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Charlottetown, P.E.I.
C1A 2N6

WATERLOO-WELLINGTON

Pres: Colleen Crowe
11 Drew Avenue
Cambridge, Ontario
N1S 3R2

RESOURCE MATERIALS

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356 Rankin Drive
Burlington, Ontario
L7N 2B4
PH: 905-637-5146